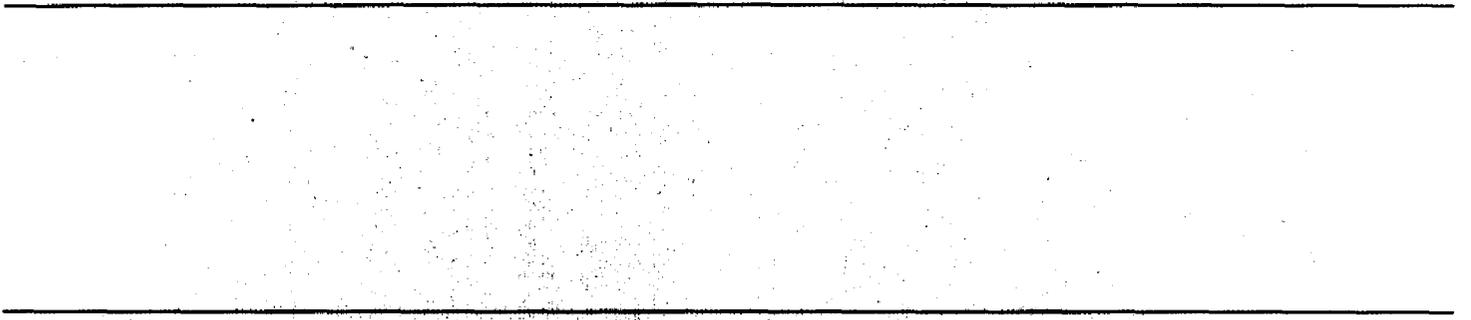


September 1991

**INFORMATION  
RESOURCES**

**HCFA Must Better  
Justify Further Data  
Center Expansion**





**Information Management and  
Technology Division**

B-244854

September 5, 1991

The Honorable Louis W. Sullivan, M.D.  
The Secretary of Health and Human Services

Dear Mr. Secretary:

This report presents the results of our review of the Health Care Financing Administration's (HCFA) plans to upgrade its data center. Additional computer hardware is being acquired to meet growing needs for information resources in HCFA, the Department of Health and Human Services, and the research community.

Our objective was to determine if HCFA had adequately justified planned acquisitions of computer hardware for expanding its data center. In making this determination, we specifically reviewed the planning and analysis documentation used to support this expansion. We also evaluated whether HCFA had a capacity management program to analyze its current data center work load and forecast future needs. Additionally, we reviewed relevant documentation on planned capacity increases and discussed related issues with HCFA officials. Our work was performed primarily at HCFA offices in Baltimore, Maryland, from January to July 1991, in accordance with generally accepted government auditing standards.

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**Results in Brief**

HCFA has not adequately justified its planned acquisition of computer hardware needed to expand the processing and storage capacity of its data center. Proposed capacity increases have not been adequately estimated or effectively linked to user requirements. User needs have been identified in broad terms throughout various planning documents. However, these user needs have not been systematically translated into specific capacity requirements based on work load and performance studies. In addition, HCFA does not have an effective computer capacity management program. The Federal Information Resources Management Regulation (FIRMR) and related guidance state that such a program is necessary to analyze current computer resource consumption, quantify user requests for service, and forecast future computer resource needs. HCFA's efforts at capacity management did not provide adequate information to translate general user needs into computer performance requirements. We also found little rationale for the forecasting methodology used and growth estimates that were based on very little historical data. With the increasing size and complexity of the data center,

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more detailed, systematic analyses are needed to justify the acquisition of additional capacity.

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## Background

HCFA's primary mission is to manage government health-related programs including Medicare and Medicaid, which provide billions of dollars in health care services to millions of eligible beneficiaries. HCFA sees the ability to support its mission as dependent on its ability to gather, store, retrieve, and analyze large volumes of health care data. The HCFA data center, located in Baltimore, Maryland, provides the agency's primary internal computer processing capability to support HCFA's information-intensive activities.

In 1990 HCFA began an extensive program to upgrade its data center and increase its capacity for processing information. This expansion was initiated to support computer modernization, meet an increased need for information processing dictated by new legislative requirements, and address increasing user demand for more information needed for future policy and program development. HCFA intends for the data center to serve as a centralized source of processing power supporting its mission-critical data bases and a growing number of users in the agency, in the Department, and in the broader research community.

HCFA is moving from independently designed and operated systems to an integrated data base environment. The agency intends to redesign and integrate its major data bases and run the resulting systems at the data center. Additionally, HCFA is implementing an initiative to provide global access to the data bases at the data center. Data will be more accessible to HCFA managers and analysts to help them explore new health care proposals and improve ongoing program support operations.

HCFA expects the need for data center capacity will grow in proportion to the rising beneficiary population over the next decade. The agency also anticipates a need for major expansion because new legislative mandates are expected to increase the amount of health care information HCFA is required to analyze. Additionally, the data center will also support research carried out by users in other agencies of the Department of Health and Human Services. For example, HCFA data bases will be a primary source for research on the effectiveness of medical treatment. This research will be carried out primarily by the Agency for Health Care Policy and Research within the Public Health Service.

HCFA requested and received a delegation of procurement authority from the General Services Administration to acquire more computer processing capacity and direct-access storage capability over a 7-year period. Through several procurements during this period, HCFA expects to acquire almost an 8-fold increase in computer capacity and over a 10-fold increase in storage. The cost of these increases is estimated to be at least \$70 million. In November 1990, HCFA awarded its first contract under this delegation. The contract roughly tripled the data center's processing capabilities.

## HCFA Needs to Improve Justification for Further Data Center Expansion

Although HCFA has awarded its first expansion contract, the agency needs to do a much better job of linking user needs to specific capacity requirements. It also needs to ensure that the process it uses to justify future expansion of its data center follows federal guidelines for the acquisition of automated systems.

FIRMR 201-20 requires that an agency establish and document its requirements for federal information processing resources by conducting a requirements analysis commensurate with the size and complexity of the need. The FIRMR states that the requirements analysis shall include (1) a determination of information needs, (2) a description of the requirements in terms of functions to be performed and the performance to be achieved, and (3) a description of work load and related requirements. A comprehensive requirements analysis provides justification for acquisition of specific capacity levels by showing how much capacity of a specific type is required to meet the established information needs.

FIRMR Bulletin C-4 further provides guidance on agency responsibilities for analyzing work loads, defining performance requirements, selecting and using validation techniques, analyzing risks, and incorporating the results of these analyses into appropriate acquisition phases. The bulletin also identifies related guidance on these capacity management activities. Capacity management activities are important because they provide agencies with data to measure current computer use and needs, and to predict future capacity requirements.

HCFA has documented a growing need for data center expansion in its 5-year IRM plan, system redesign and development documents, and budget and procurement requests. While these documents established a general need for expanding and modernizing its data center capability, HCFA did not develop a comprehensive requirements analysis that provides adequate justification for projected data center growth.

We reviewed HCFA's requirements analysis and found it to be incomplete and inconclusive. General user needs were not translated into computer performance requirements or specific work load forecasts. We found little rationale for the forecasting methodology used to project the amount of computer capacity HCFA planned to acquire during the period of the delegation of procurement authority. Estimates of growing capacity requirements were based on unsupported assumptions and very limited historical data.

An essential part of the development of an effective requirements analysis is a good capacity management program. Because HCFA has not implemented an effective capacity management program for its data center, it does not have the detailed data needed to measure current computer use and needs, and to predict future capacity requirements. For example, the data center monitored capacity utilization in the aggregate, but did not monitor and evaluate capacity utilization for individual uses. Until recently, a HCFA official acknowledged, the agency had no formal capacity management activity. Rather, capacity management activities were conducted on an ad hoc basis, as required.

Without the detailed information provided by an adequate capacity management program, agency officials will not be able to relate planned capacity increases to specific requirements, or provide adequate, quantitative estimates of future capacity needs. While HCFA has made progress in identifying its broad needs for information resources, it has not implemented the techniques of capability and performance measurement and forecasting that it needs to translate user needs into specific capacity requirements.

Credible capacity management includes computer performance evaluation and a forecasting methodology to predict future work loads. HCFA officials acknowledge that estimates of computing and storage needs used in developing the agency procurement request were very rough and represented the maximum amounts they thought they might need. Although they have revised and scaled back their estimates of storage requirements, they have still not implemented a systematic program for measuring capacity needs.

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## Conclusions

Because of growth in its major programs, new legislative requirements, and the continuing need for more information to set future policy, HCFA can expect increasing data center work loads. However, before any further expansion of its data center can be justified, HCFA must develop an

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effective requirements analysis commensurate with the size and complexity of its proposed acquisition of resources for the data center. Such an analysis must be based on consideration of future information needs and detailed capacity management information. HCFA's existing capacity management activities are not adequate to provide the detailed information needed to justify expanding its data center. Without an adequate requirements analysis, HCFA cannot ensure that it is acquiring appropriate levels of computer capacity to reduce the risk of an adverse impact on the agency's mission.

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## Recommendation

To ensure that future HCFA computer capacity acquisitions are adequately supported and meet the needs of top management, policy-makers, and researchers, we recommend that you direct the Administrator, HCFA, to work with the Deputy Assistant Secretary for Information Resources Management in developing a requirements analysis that clearly links HCFA's information needs with planned data center expansion. To support this analysis, the agency should provide a more precise basis for planning future growth by implementing the methodologies included in good capacity management.

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## Agency Comments

We discussed our findings with responsible HCFA officials during the course of our work and incorporated their views where appropriate. HCFA's chief information resources management official agreed with our conclusions. He stated that he intends to develop an effective capacity management program and improve requirements planning and analysis before requesting additional capacity upgrades for the data center.

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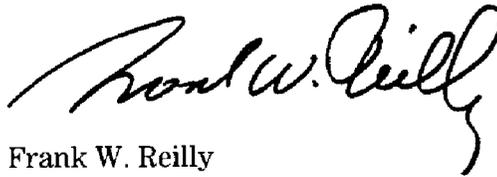
This report contains a recommendation to you. As you know, the head of a federal department is required by 31 U.S.C. 720 to prepare a written statement on actions taken on a recommendation and submit it to the Senate Committee on Governmental Affairs and the House Committee on Government Operations not later than 60 days after the date of the report, and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the letter.

We are providing copies of this report to the Administrator of the Health Care Financing Administration, interested members of the Congress, and other parties. Copies will also be provided to others upon request. If you

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have any questions about this report, please call me at (202) 275-4659.  
Other major contributors are listed in appendix I.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Frank W. Reilly". The signature is written in a cursive style with a large, sweeping initial "F".

Frank W. Reilly  
Director, Human Resources  
Information Systems



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# Major Contributors to This Report

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